



SPORTON LAB.

Certificate No: FD232843

CERTIFICATE OF COMPLIANCE

Authorized under Declaration of Conformity
according to

47 CFR, Part 2 and Part 15 of the FCC Rules



EQUIPMENT : 802.11abgn, USB module

MODEL NO. : WUBR-508N

APPLICANT : SparkLAN Communications, Inc.

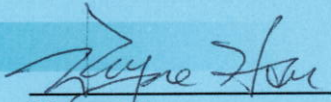
8F., No. 257, Sec. 2, Tiding Blvd., Neihu District,
Taipei City 11493, Taiwan



I HEREBY

CERTIFY THAT:

The measurements shown in this test report were made in accordance with the procedures given in **ANSI C63.4-2003** and all tests are performed according to **47 CFR FCC Part 15 Subpart B**. Testing was carried out on **May 14, 2012** at SPORTON International Inc. LAB.


Wayne Hsu
Assistant Manager

FCC EMC TEST REPORT

Authorized under Declaration of Conformity

According to

47 CFR FCC Part 15 Subpart B

Equipment : 802.11abgn, USB module
Brand Name : SparkLAN
Model No. : WUBR-508N
Filing Type : New Application
Applicant : SparkLAN Communications, Inc.
Manufacturer : 8F., No. 257, Sec. 2, Tiding Blvd., Neihu District,
Taipei City 11493, Taiwan
Received Date : Mar. 29, 2012
Final Test Date : May 14, 2012

Statement

Test result included in this report is only for printed antenna of the product.

The test result in this report refers exclusively to the presented test model / sample.

Without written approval of SPORTON International Inc., the test report shall not be reproduced except in full.

The measurements and test results shown in this test report were made in accordance with the procedures and found in compliance with the limit given in **ANSI C63.4-2003** and **47 CFR FCC Part 15 Subpart B**.

The test equipment used to perform the test is calibrated and traceable to NML/ROC.



SPORTON International Inc.

No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.

Table of Contents

CERTIFICATE OF COMPLIANCE.....	1
1 SUMMARY OF THE TEST RESULT	2
2 GENERAL INFORMATION.....	3
2.1 Product Details.....	3
2.2 Table for Test Modes	3
2.3 Table for Testing Locations.....	3
2.4 Table for Supporting Units	3
2.5 EUT Operation during Test	3
2.6 Test Configurations	4
3 TEST RESULT	6
3.1 AC Power Line Conducted Emissions Measurement	6
3.2 Radiated Emissions Measurement	10
4 LIST OF MEASURING EQUIPMENTS.....	26
5 TEST LOCATION.....	27
6 TAF CERTIFICATE OF ACCREDITATION.....	28
APPENDIX A. TEST PHOTOS	A5
APPENDIX B. PHOTOGRAPHS OF EUT	B11

History of This Test Report

Original Issue Date: May 15, 2012

Report No.: FD232843

■ No additional attachment.

□ Additional attachment were issued as following record:

Report No.	Issue Date	Description

CERTIFICATE OF COMPLIANCE

Authorized under **D**eclaration **o**f **C**onformity

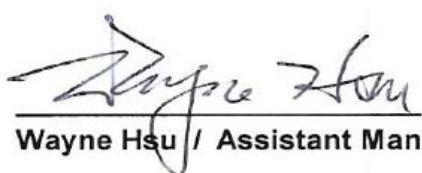
According to

47 CFR FCC Part 15 Subpart B

Equipment : 802.11abgn, USB module
Brand Name : SparkLAN
Model No. : WUBR-508N
Applicant : SparkLAN Communications, Inc.
8F., No. 257, Sec. 2, Tiding Blvd., Neihu District,
Taipei City 11493, Taiwan

WE HEREBY CERTIFY THAT:

The measurements shown in this test report were made in accordance with the procedures given in ANSI C63.4-2003 and the energy emitted by this equipment were passed 47 CFR FCC Part 15 Subpart B. Testing was carried out on Mar. 29, 2012 at SPORTON International Inc. LAB.


Wayne Hsu / Assistant Manager

SPORTON International Inc.

No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.

1 SUMMARY OF THE TEST RESULT

Applied Standard: 47 CFR FCC Part 15 Subpart B				
Part	Rule Section	Description of Test	Result	Under Limit
3.1	15.107	AC Power Line Conducted Emissions	Complies	15.62 dB
3.2	15.109	Radiated Emissions	Complies	3.14 dB

Test Items	Uncertainty	Remark
AC Power Line Conducted Emissions	±2.3dB	Confidence levels of 95%
Radiated Emissions	±1.9dB	Confidence levels of 95%

2 GENERAL INFORMATION

2.1 Product Details

There are three types of the EUT. The difference between these three types is connector; we chose the full function type to test. The equipment is 802.11abgn, USB module. For more detailed features description, please refer to the specifications or user's manual.

2.2 Table for Test Modes

Investigation has been done on the entire possible Configuration for searching the worst cases. The following table is a list of the test modes shown in this test report.

Test Items	Mode
AC Power Line Conducted Emissions	System Mode
Radiated Emissions (30MHz~1GHz)	System Mode
Radiated Emissions (Above 1GHz)	CRX 802.11a 5785 MHz
	CRX 802.11n 5785 MHz (20MHz)
	CRX 802.11n 5795 MHz (40MHz)
	CRX 802.11g 2437 MHz
	CRX 802.11n 2437 MHz (20MHz)
	CRX 802.11n 2437 MHz (40MHz)

2.3 Table for Testing Locations

Test Site No.	Site Category	Location
CO01-HY	Conduction	Hwa Ya
03CH02-HY	SAC	Hwa Ya

Semi Anechoic Chamber (SAC).

2.4 Table for Supporting Units

Support Unit	Brand	Model	FCC ID
Notebook	DELL	VOSTRO 3350	DoC
(USB) Mouse	Microsoft	1113	JNZ211443
iPod nano	Apple	A1199	N/A
Wireless AP (Remote Workstation)	D-Link	DNS-G120	DoC

2.5 EUT Operation during Test

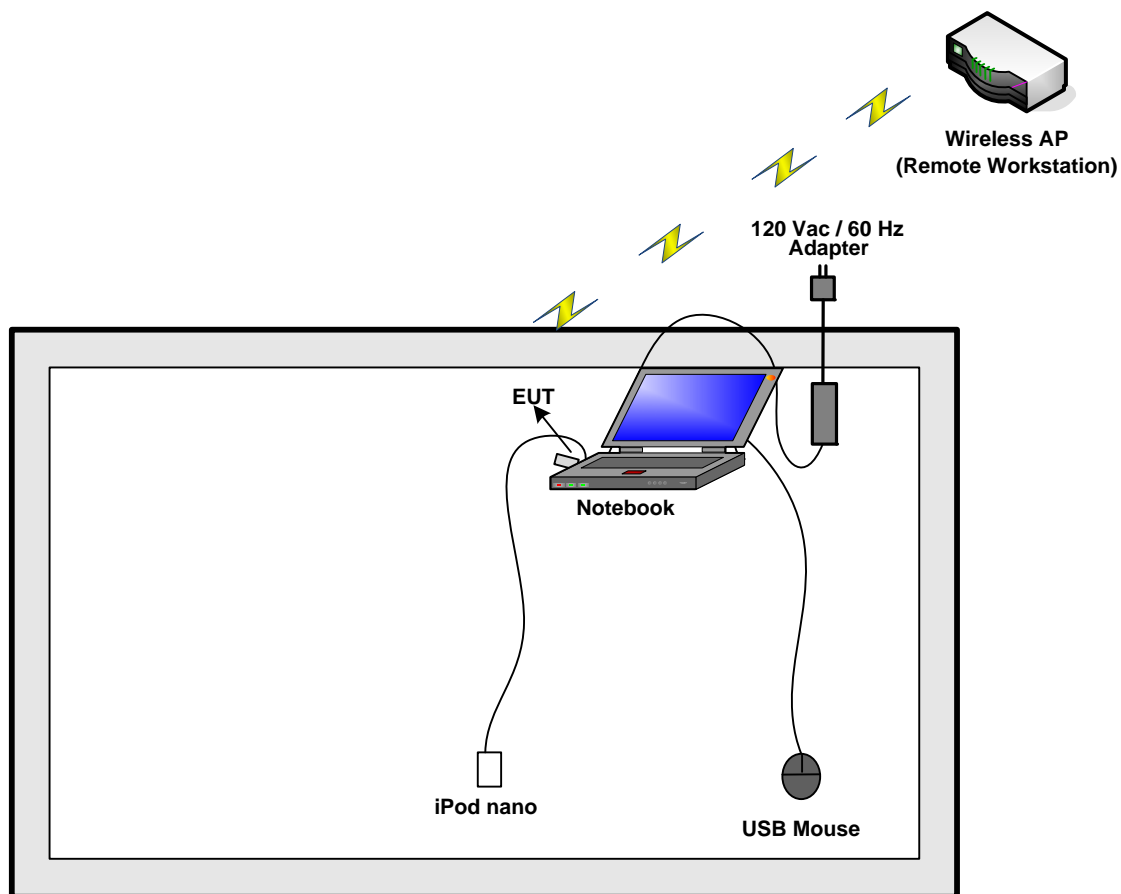
Two executive programs, "EMITEST.exe" and "EMCTEST.exe" under Win XP, which generates a complete line of continuously repeating "H" pattern was used as the test software.

The program was executed as follows:

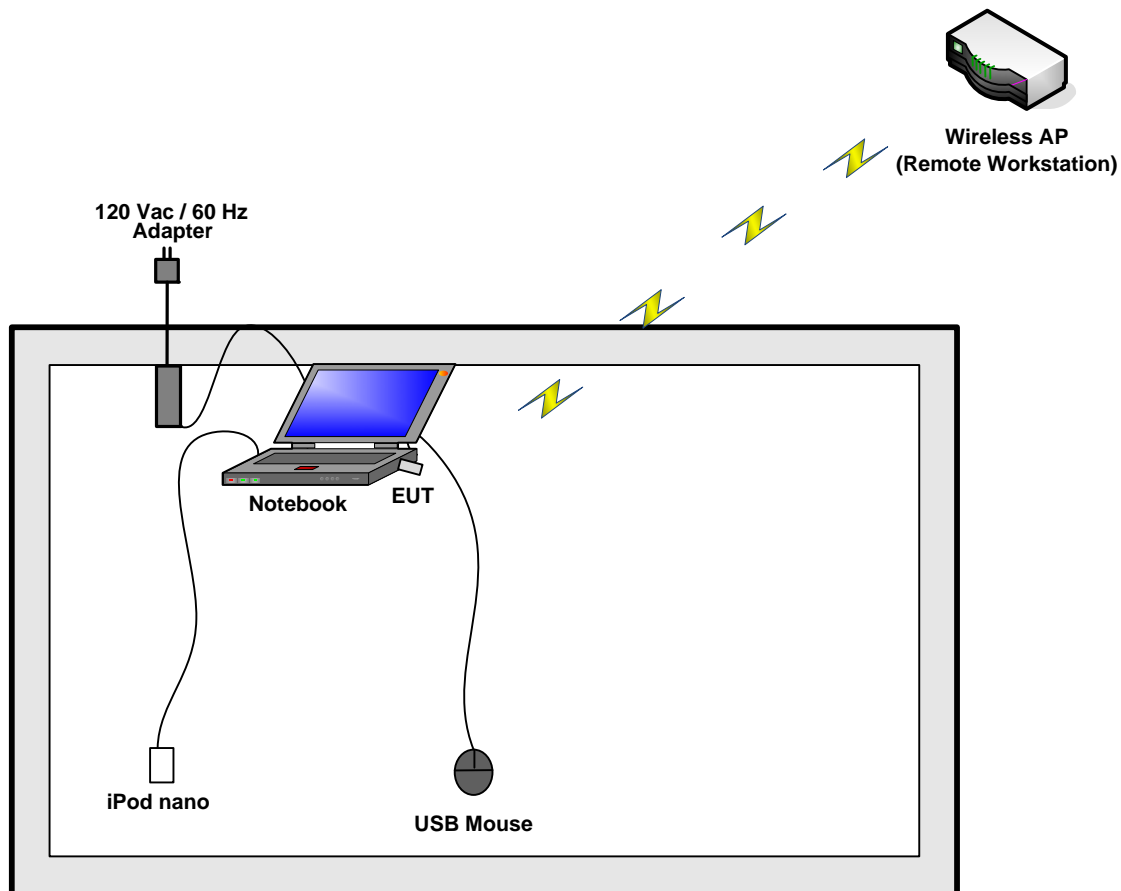
- Turn on the power of all equipment.
- The NB executed "Winthrax.exe" to read/write data from EUT.
- The NB executed " EMITEST.exe " sends "H" messages to the panel and displays "H" patterns on the screen.
- The EUT connect to remote workstation (Wireless AP) via WiFi.

2.6 Test Configurations

Conducted Emissions



Radiated Emission



3 TEST RESULT

3.1 AC Power Line Conducted Emissions Measurement

3.1.1 Limit

For this product which is designed to be connected to the AC power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed below limits table.

Class B

Frequency (MHz)	QP Limit (dBuV)	AV Limit (dBuV)
0.15~0.5	66~56	56~46
0.5~5	56	46
5~30	60	50

3.1.2 Measuring Instruments and Setting

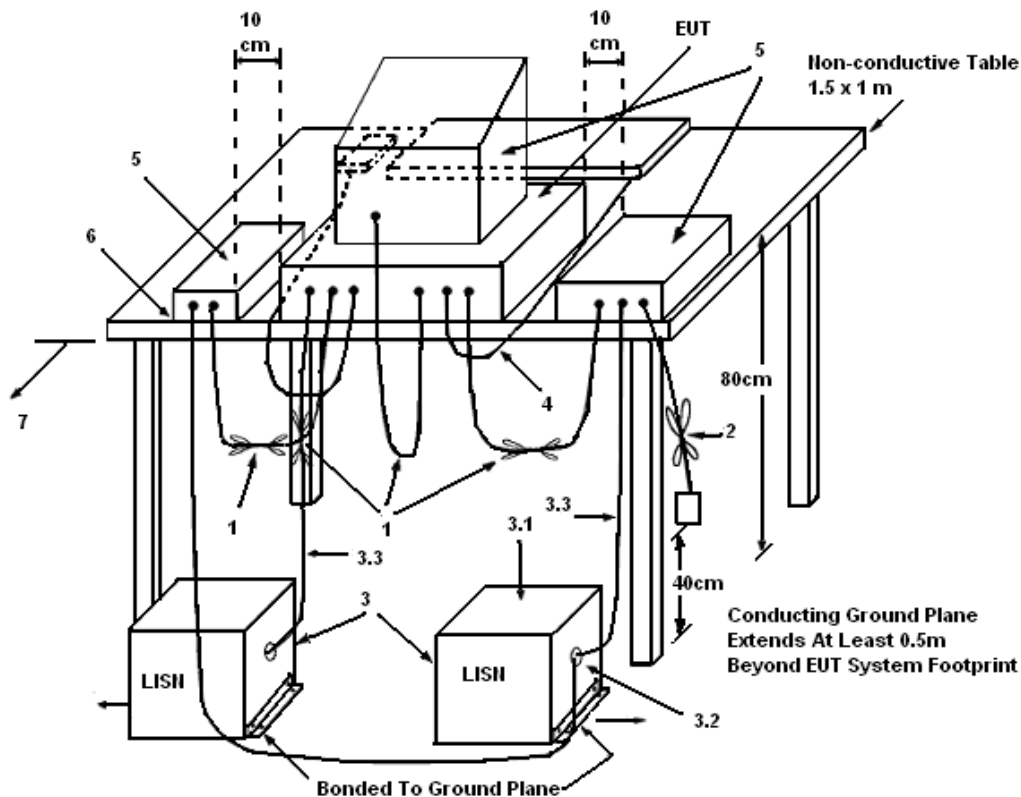
Please refer to section 4 of equipments list in this report. The following table is the setting of the receiver.

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 KHz

3.1.3 Test Procedures

1. The EUT was warmed up for 15 minutes before testing started.
2. The EUT was placed on a desk 0.8 meters height from the metal ground plane and 0.4 meter from the conducting wall of the shielding room and it was kept at least 0.8 meters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (LISN).
4. All the support units are connect to the other LISN.
5. The LISN provides 50 ohm coupling impedance for the measuring instrument.
6. The CISPR states that a 50 ohm, 50 microhenry LISN should be used.
7. Both sides of AC line were checked for maximum conducted interference.
8. The frequency range from 150 kHz to 30 MHz was searched.
9. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

3.1.4 Test Setup Layout



LEGEND:

- (1) Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- (2) I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- (3) EUT connected to one LISN. Unused LISN measuring port connectors shall be terminated in 50 Ω . LISN can be placed on top of, or immediately beneath, reference ground plane.
 - (3.1) All other equipment powered from additional LISN(s).
 - (3.2) Multiple outlet strip can be used for multiple power cords of non-EUT equipment.
 - (3.3) LISN at least 80 cm from nearest part of EUT chassis.
- (4) Cables of hand-operated devices, such as keyboards, mice, etc., shall be placed as for normal use.
- (5) Non-EUT components of EUT system being tested.
- (6) Rear of EUT, including peripherals, shall all be aligned and flush with rear of tabletop.
- (7) Rear of tabletop shall be 40 cm removed from a vertical conducting plane that is bonded to the ground plane.

3.1.5 Test Deviation

There is no deviation with the original standard.

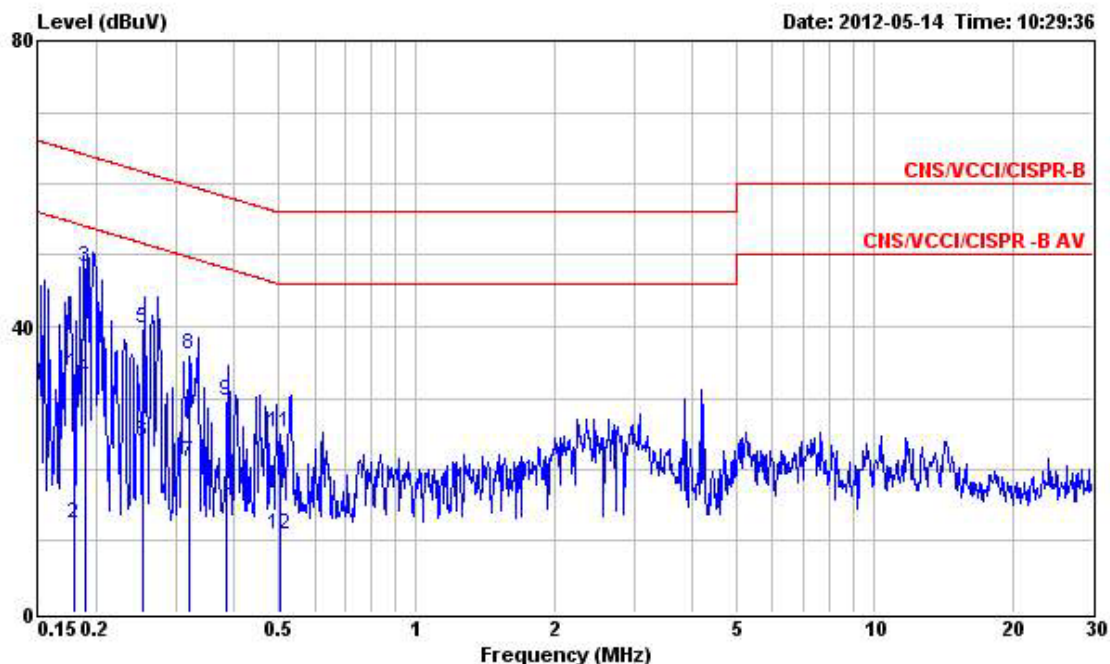
3.1.6 EUT Operation during Test

The EUT was placed on the test table and programmed in normal function.

3.1.7 Results of AC Power Line Conducted Emissions Measurement

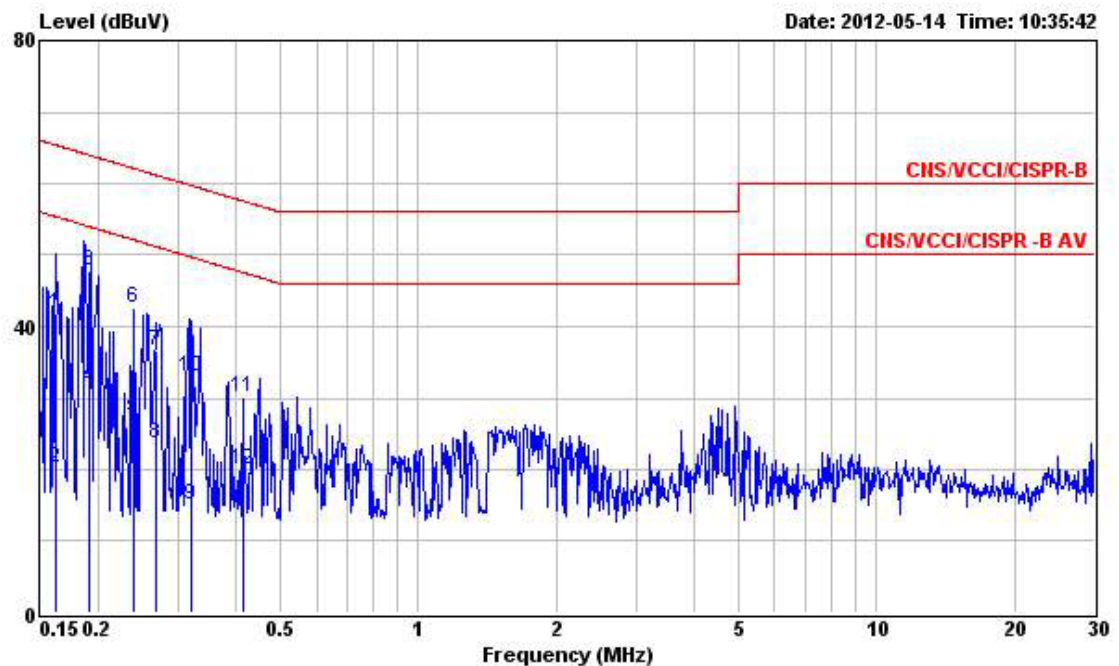
Final Test Date	May 14, 2012	Test Site No.	CO01-HY
Temperature	23.6°C	Humidity	49%
Test Engineer	David	Configuration	System Mode

Line



	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.179	33.55	-30.97	64.52	33.37	0.08	0.10	QP
2	0.179	12.50	-42.02	54.52	12.32	0.08	0.10	Average
3	0.190	48.41	-15.62	64.03	48.23	0.08	0.10	QP
4	0.190	32.72	-21.31	54.03	32.54	0.08	0.10	Average
5	0.252	39.65	-22.05	61.70	39.47	0.08	0.10	QP
6	0.252	23.96	-27.74	51.70	23.78	0.08	0.10	Average
7	0.320	21.12	-28.59	49.71	20.93	0.09	0.10	Average
8	0.320	36.04	-23.67	59.71	35.85	0.09	0.10	QP
9	0.386	29.65	-28.49	58.14	29.46	0.09	0.10	QP
10	0.386	16.35	-31.79	48.14	16.16	0.09	0.10	Average
11	0.503	25.13	-30.87	56.00	24.93	0.10	0.10	QP
12	0.503	11.02	-34.98	46.00	10.82	0.10	0.10	Average

Neutral



	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.162	41.94	-23.42	65.36	41.77	0.07	0.10	QP
2	0.162	20.37	-34.99	55.36	20.20	0.07	0.10	Average
3	0.191	47.88	-16.10	63.98	47.72	0.06	0.10	QP
4	0.191	31.51	-22.47	53.98	31.35	0.06	0.10	Average
5	0.238	27.19	-24.97	52.16	27.03	0.06	0.10	Average
6	0.238	42.57	-19.59	62.16	42.41	0.06	0.10	QP
7	0.267	36.55	-24.66	61.21	36.39	0.06	0.10	QP
8	0.267	23.71	-27.50	51.21	23.55	0.06	0.10	Average
9	0.321	15.09	-34.60	49.69	14.92	0.07	0.10	Average
10	0.321	32.95	-26.74	59.69	32.78	0.07	0.10	QP
11	0.413	30.14	-27.45	57.59	29.97	0.07	0.10	QP
12	0.413	20.06	-27.53	47.59	19.89	0.07	0.10	Average

Note:
Level = Read Level + Probe Factor + Cable Loss.

3.2 Radiated Emissions Measurement

3.2.1 Limit

Measurements shall be made with a quasi-peak measuring receiver in the frequency range 30 MHz to 5th harmonic of highest frequency. The quasi-peak measuring receiver shall be in accordance with clause 2 of CISPR 16-1. Receivers with peak detectors shall be in accordance with clause 3 of CISPR 16-1, and shall have a 6 dB bandwidth in accordance with clause 2 of CISPR 16-1.

Frequency of Emission (MHz)	Field Strength QP Limit (dBuV/m) at 3m
30~88	40
88~216	43.5
216~960	46
960~1000	54

3.2.2 Measuring Instruments and Setting

Please refer to section 4 of equipments list in this report. The following table is the setting of spectrum analyzer and receiver.

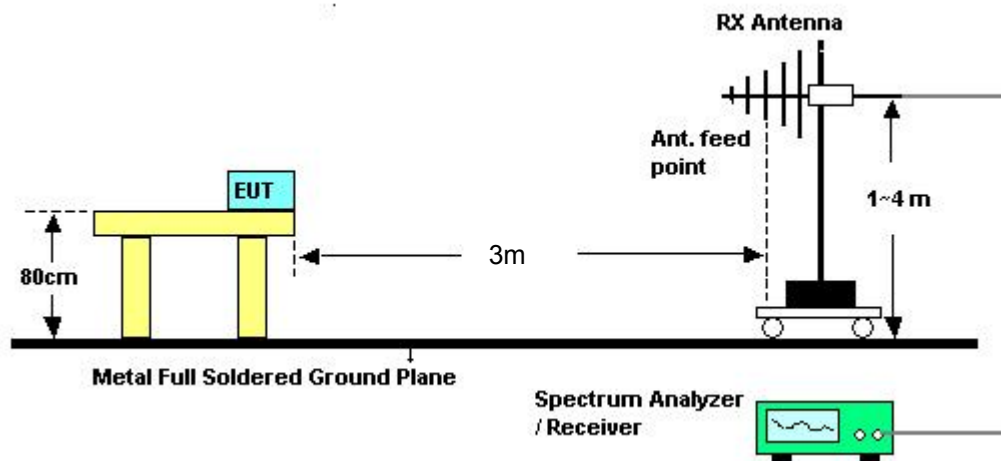
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

Spectrum Parameter	Setting
Start Frequency	1000 MHz
Stop Frequency	5th harmonic of highest frequency
RB / VB	1 MHz / 1MHz for Peak; 1 MHz / 10Hz for Average

3.2.3 Test Procedures

1. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.

3.2.4 Test Setup Layout



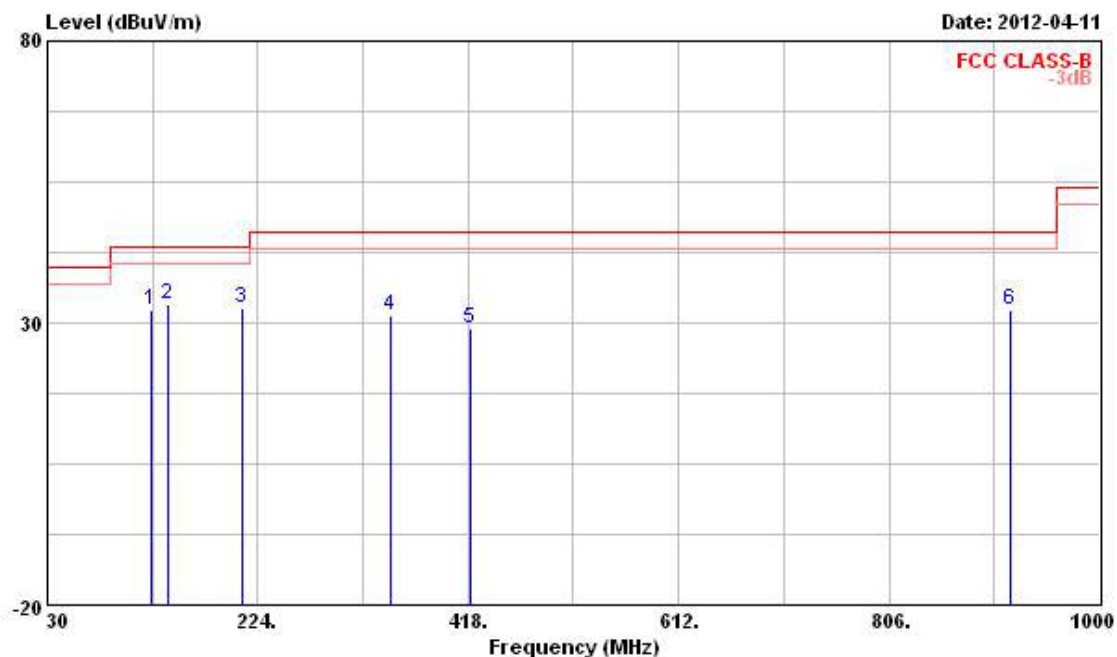
3.2.5 Test Deviation

There is no deviation with the original standard.

3.2.6 Results of Radiated Emissions (30MHz~1GHz)

Final Test Date	Apr. 11, 2012	Test Site No.	03CH02-HY
Temperature	23.9℃	Humidity	63%
Test Engineer	Streak	Configurations	System Mode

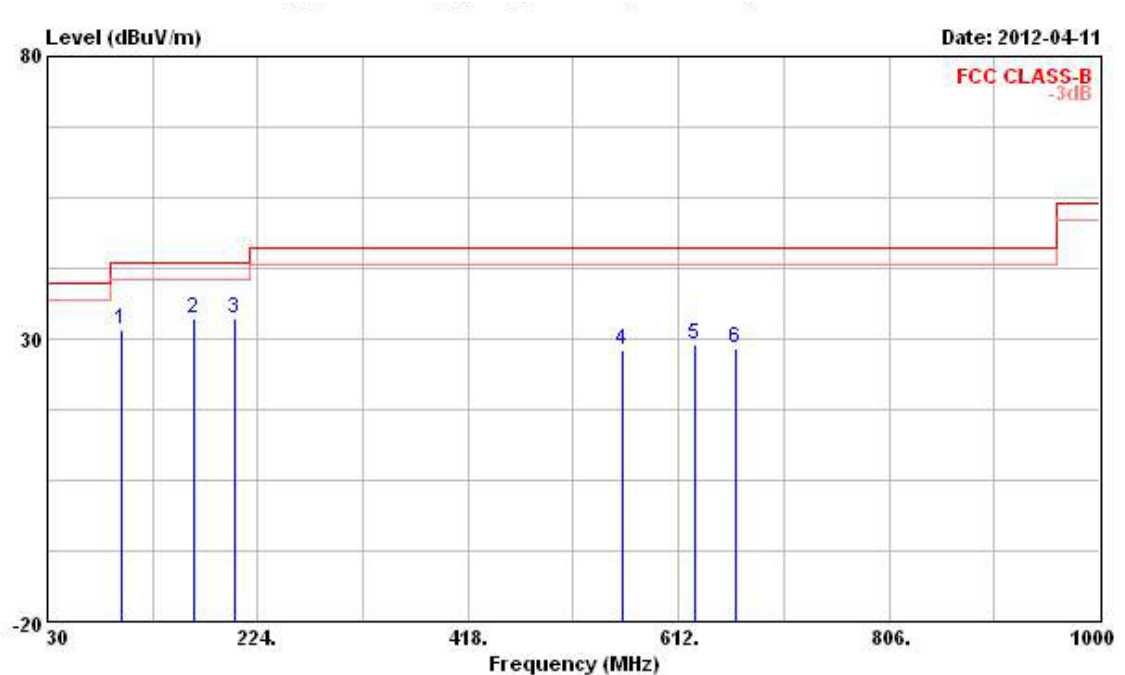
Horizontal



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	126.030	32.18	-11.32	43.50	44.95	13.10	1.87	27.74	Peak	---	---
2	141.550	33.13	-10.37	43.50	47.02	11.78	2.00	27.67	Peak	---	---
3	210.420	32.71	-10.79	43.50	45.89	11.70	2.50	27.38	Peak	---	---
4	347.190	31.33	-14.67	46.00	41.22	14.43	3.17	27.49	Peak	---	---
5	419.940	29.02	-16.98	46.00	37.86	15.66	3.47	27.97	Peak	---	---
6	917.550	32.15	-13.85	46.00	33.87	20.46	5.35	27.53	Peak	---	---



Vertical



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	98.870	31.72	-11.78	43.50	46.91	11.01	1.65	27.85	Peak	---	---
2	164.830	33.49	-10.01	43.50	48.57	10.34	2.14	27.56	Peak	---	---
3	202.660	33.51	-9.99	43.50	47.02	11.45	2.44	27.40	Peak	---	---
4	559.620	27.98	-18.02	46.00	33.32	19.00	4.08	28.42	Peak	---	---
5	626.550	28.94	-17.06	46.00	33.20	19.83	4.32	28.41	Peak	---	---
6	664.380	28.39	-17.61	46.00	32.98	19.32	4.43	28.34	Peak	---	---

Note:

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

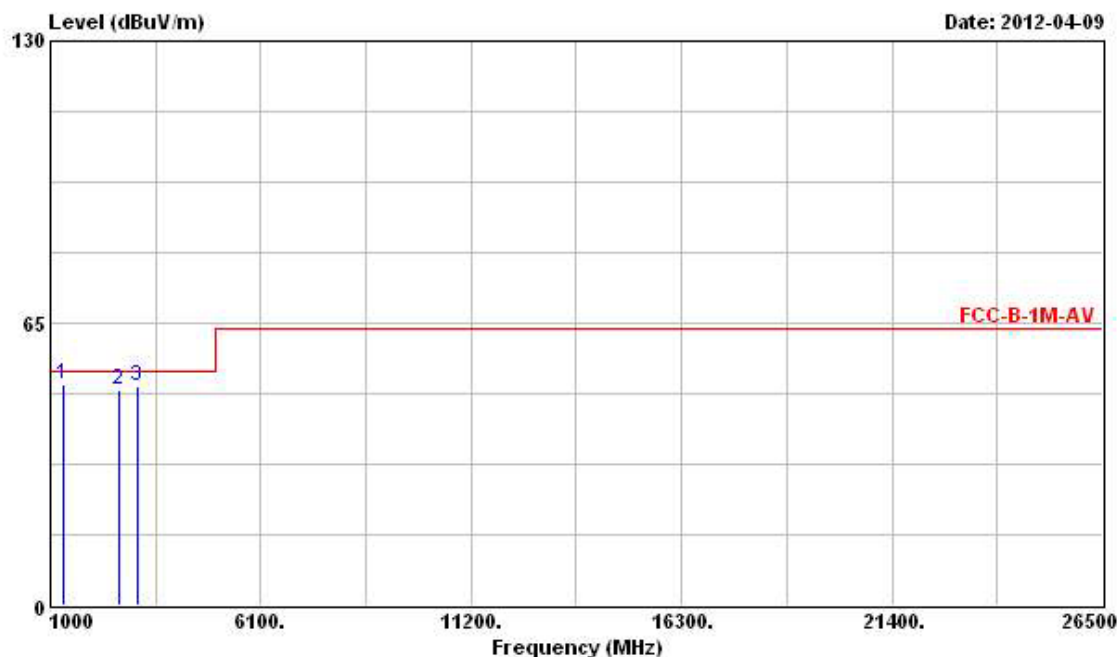
Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

3.2.7 Results for Radiated Emissions (1GHz~5th harmonic of highest frequency)

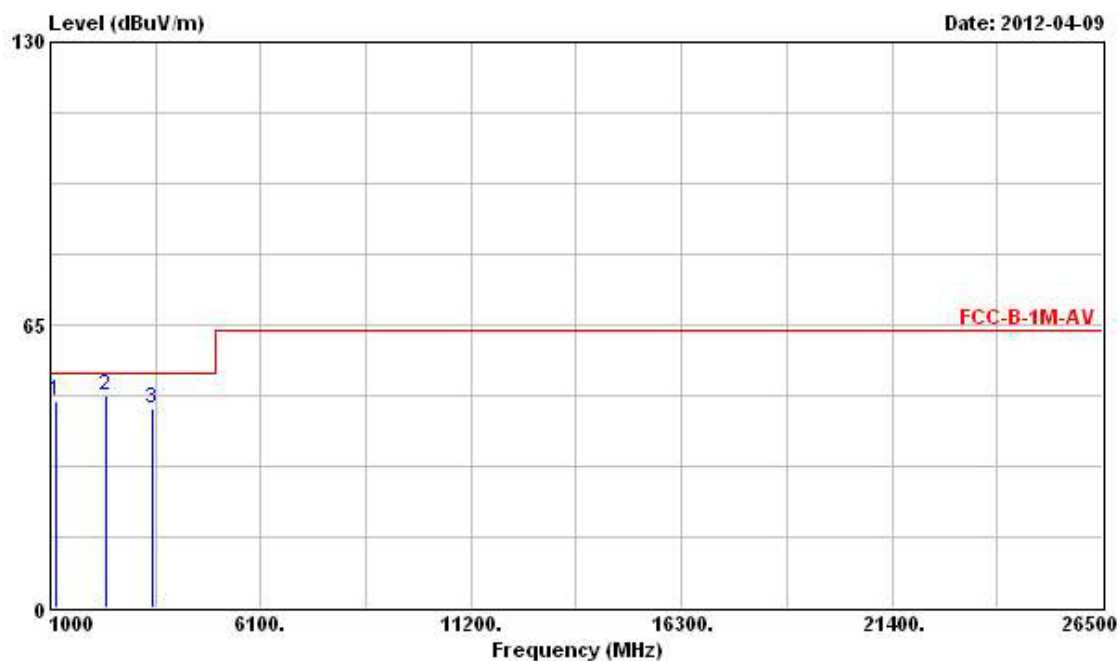
Final Test Date	Apr. 09, 2012	Test Site No.	03CH02-HY
Temperature	23.9℃	Humidity	63%
Test Engineer	Streak	Configurations	CRX 802.11a 5785 MHz

Horizontal



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	1330.000	50.86	-3.14	54.00	55.37	28.43	2.11	35.05	Peak	---	---
2	2655.000	49.43	-4.57	54.00	48.23	32.88	3.18	34.86	Peak	---	---
3	3115.000	50.52	-3.48	54.00	48.67	33.26	3.52	34.93	Peak	---	---

Vertical



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	1155.000	47.27	-6.73	54.00	52.29	28.36	1.95	35.33	Peak	---	---
2	2355.000	48.90	-5.10	54.00	48.16	32.51	2.99	34.76	Peak	---	---
3	3495.000	45.82	-8.18	54.00	43.78	33.10	3.85	34.91	Peak	---	---

Note:

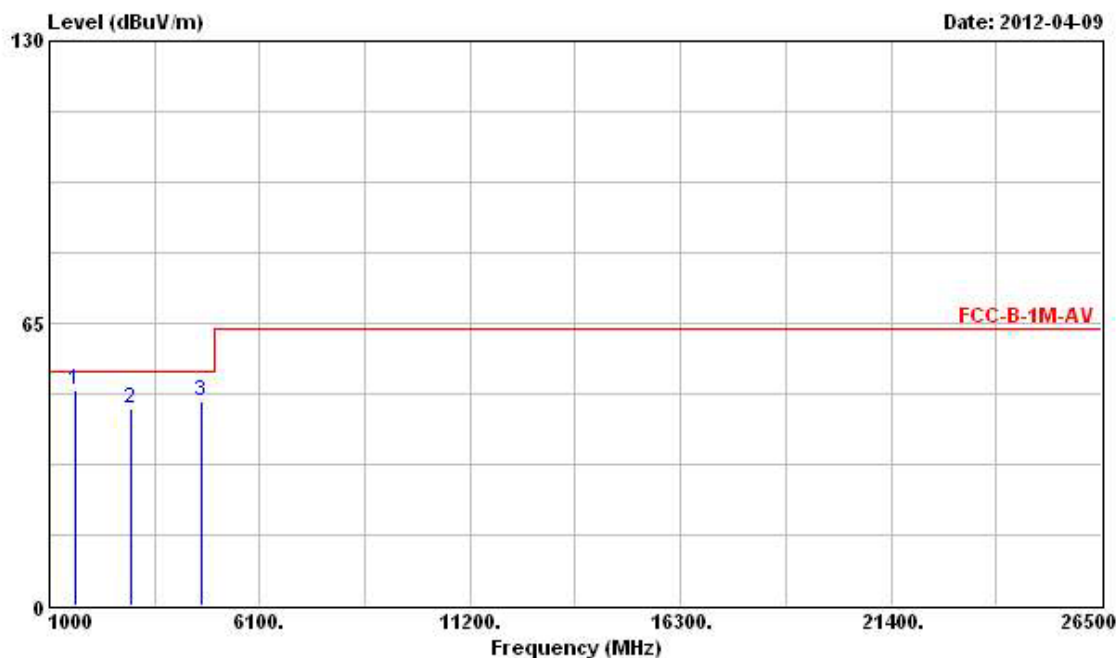
The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Final Test Date	Apr. 09, 2012	Test Site No.	03CH02-HY
Temperature	23.9℃	Humidity	63%
Test Engineer	Streak	Configurations	CRX 802.11n 5785 MHz (20MHz)

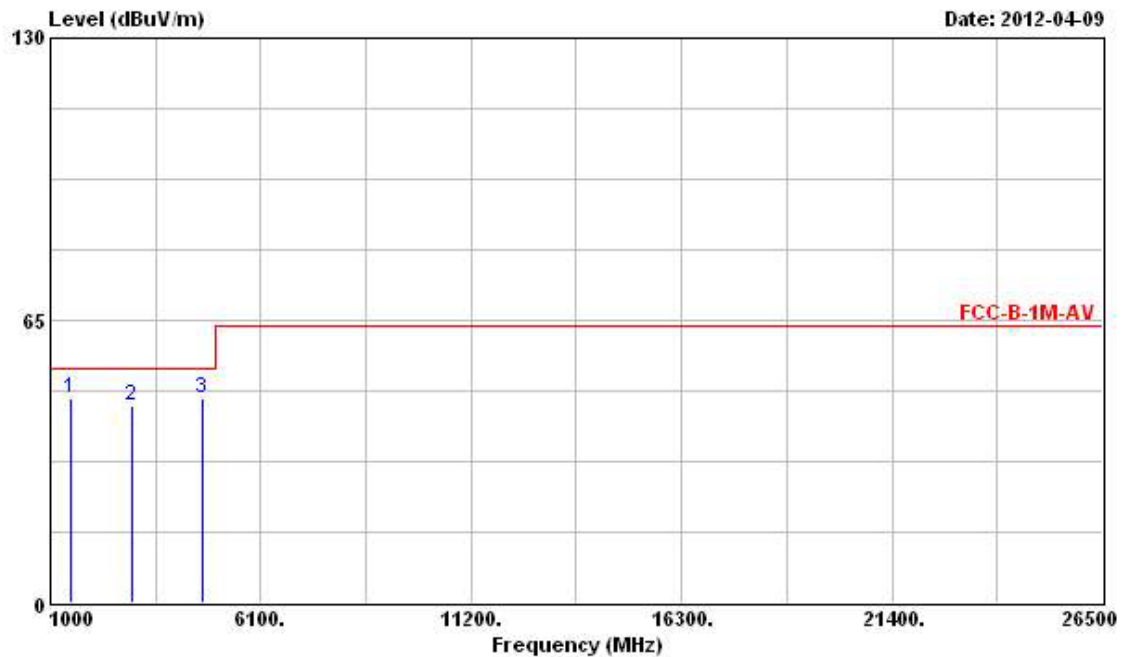
Horizontal



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	1610.000	49.73	-4.27	54.00	52.76	29.32	2.40	34.75	Peak	---	---
2	2995.000	45.15	-8.85	54.00	43.39	33.28	3.42	34.94	Peak	---	---
3	4670.000	46.96	-7.04	54.00	42.74	34.60	4.45	34.83	Peak	---	---



Vertical



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	1515.000	46.98	-7.02	54.00	50.84	28.62	2.30	34.78	Peak	---	---
2	2995.000	45.15	-8.85	54.00	43.39	33.28	3.42	34.94	Peak	---	---
3	4670.000	46.96	-7.04	54.00	42.74	34.60	4.45	34.83	Peak	---	---

Note:

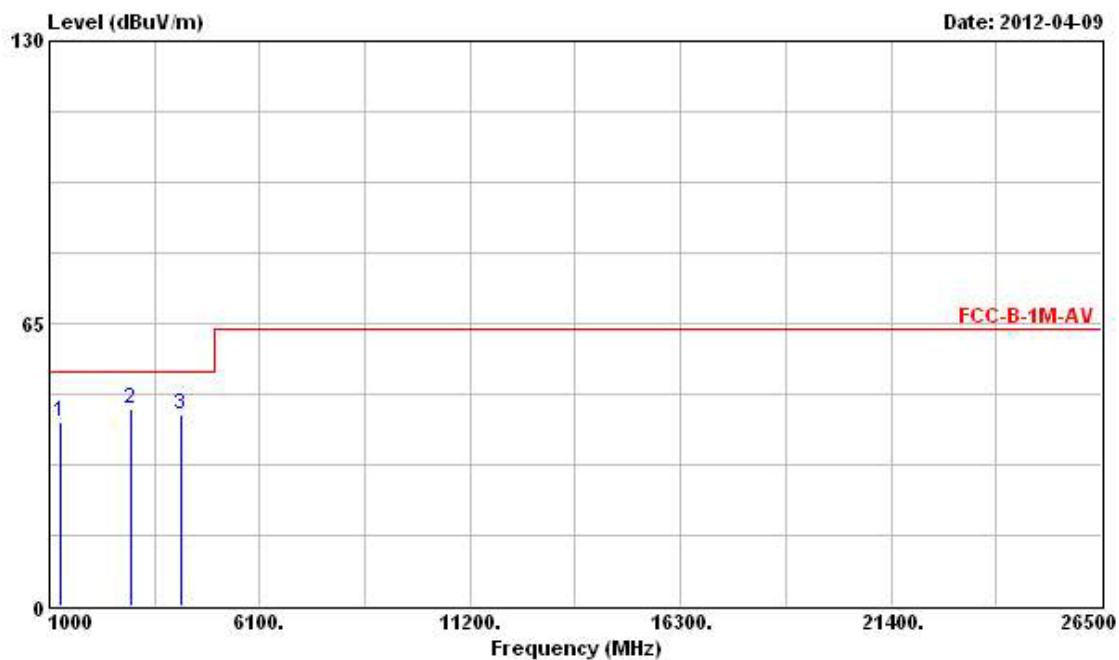
The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

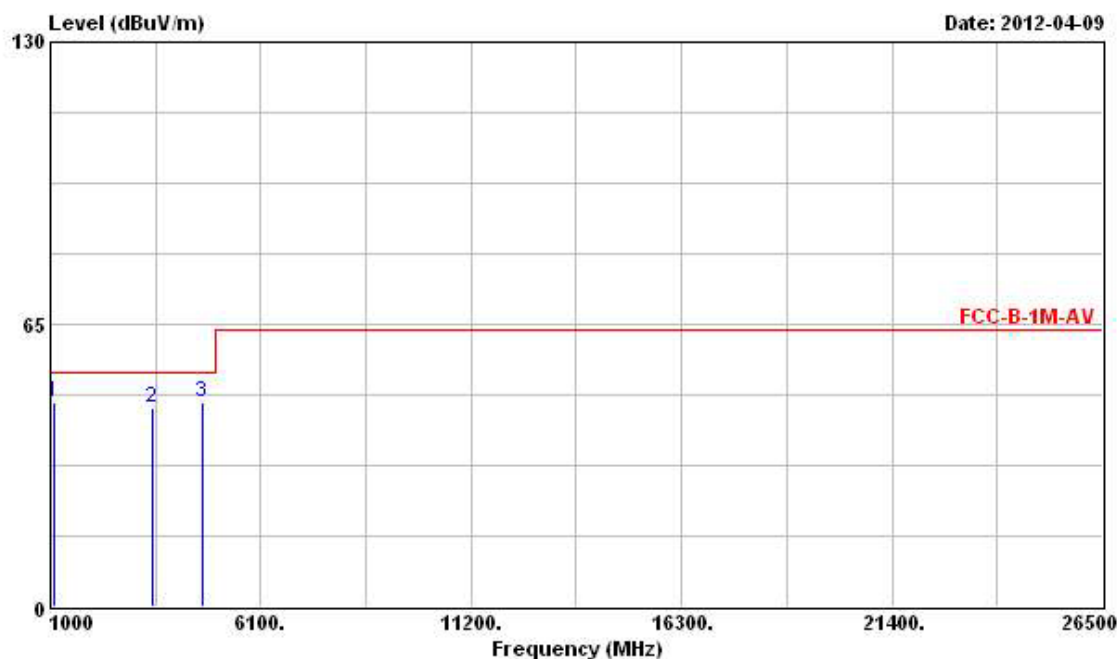
Final Test Date	Apr. 09, 2012	Test Site No.	03CH02-HY
Temperature	23.9°C	Humidity	63%
Test Engineer	Streak	Configurations	CRX 802.11n 5795 MHz (40MHz)

Horizontal



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	1250.000	42.40	-11.60	54.00	47.14	28.40	2.03	35.17	Peak	---	---
2	2995.000	45.15	-8.85	54.00	43.39	33.28	3.42	34.94	Peak	---	---
3	4195.000	44.01	-9.99	54.00	40.63	34.02	4.22	34.86	Peak	---	---

Vertical



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	1075.000	47.00	-7.00	54.00	52.23	28.33	1.88	35.44	Peak	---	---
2	3495.000	45.82	-8.18	54.00	43.78	33.10	3.85	34.91	Peak	---	---
3	4670.000	46.96	-7.04	54.00	42.74	34.60	4.45	34.83	Peak	---	---

Note:

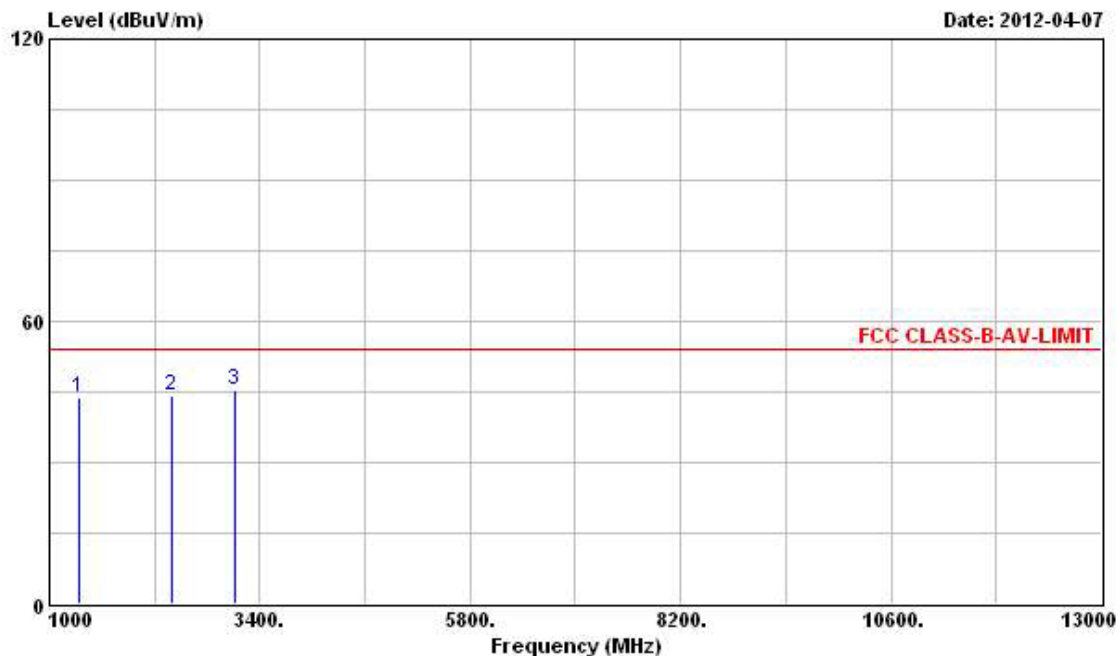
The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Final Test Date	Apr. 07, 2012	Test Site No.	03CH02-HY
Temperature	23.9°C	Humidity	63%
Test Engineer	Streak	Configurations	CRX 802.11g 2437 MHz

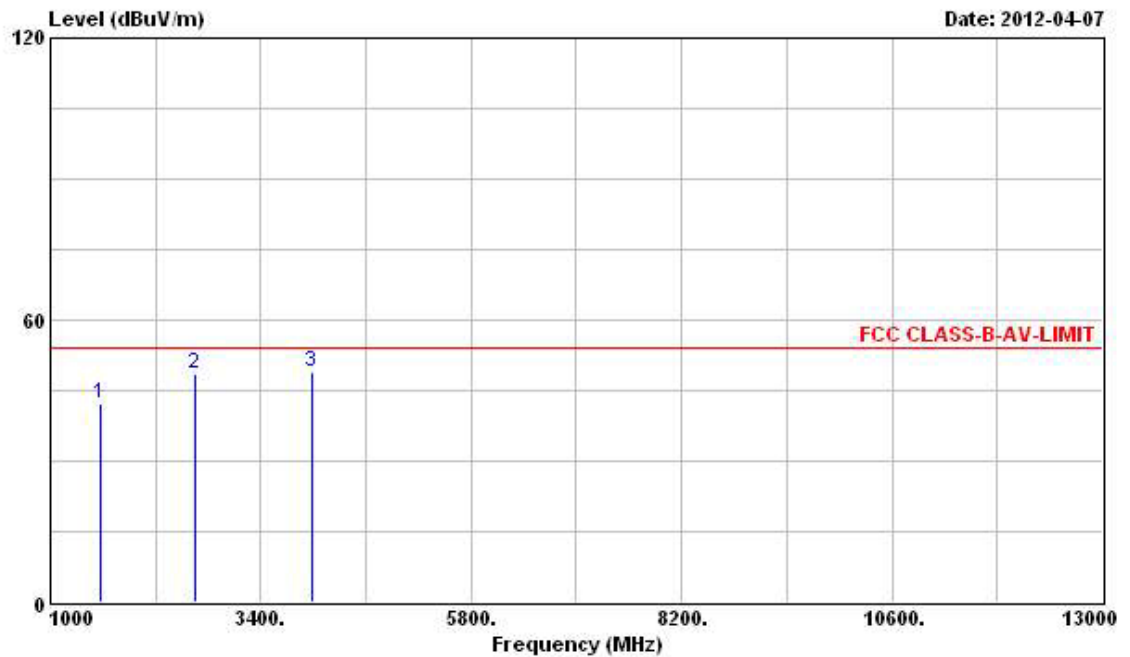
Horizontal



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	1330.000	43.95	-10.05	54.00	49.53	27.36	2.11	35.05	Peak	---	---
2	2390.000	44.23	-9.77	54.00	44.20	31.79	3.02	34.78	Peak	---	---
3	3115.000	45.52	-8.48	54.00	43.53	33.40	3.52	34.93	Peak	---	---



Vertical



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	1575.000	42.38	-11.62	54.00	46.17	28.60	2.36	34.75	Peak	---	---
2	2655.000	48.65	-5.35	54.00	47.69	32.64	3.18	34.86	Peak	---	---
3	3990.000	48.79	-5.21	54.00	45.29	34.20	4.15	34.85	Peak	---	---

Note:

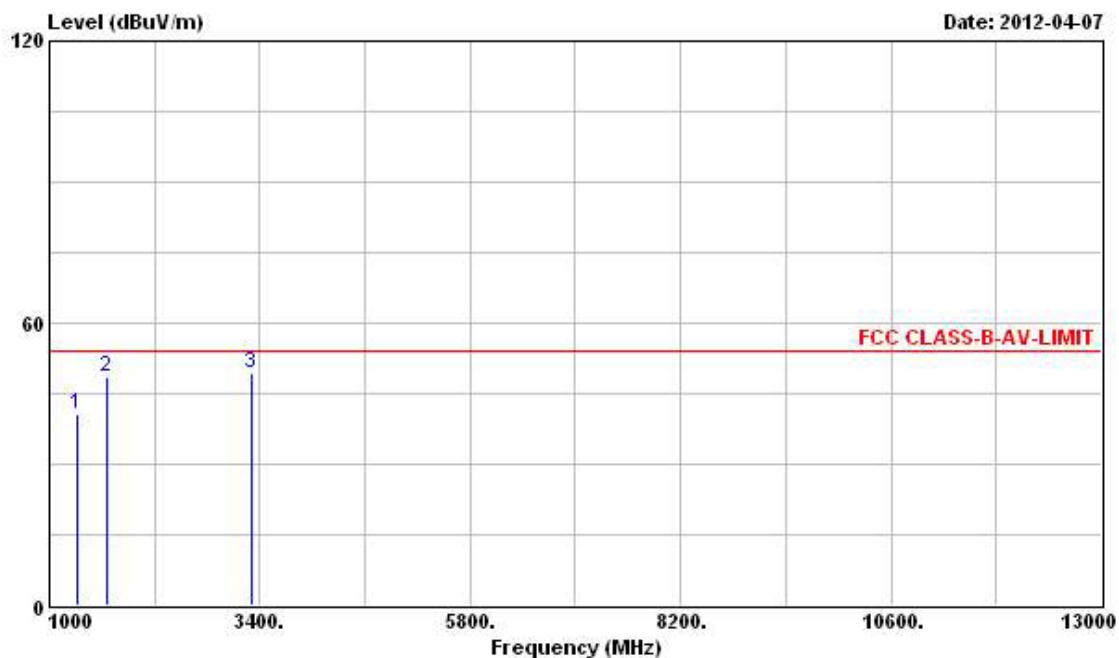
The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Final Test Date	Apr. 07, 2012	Test Site No.	03CH02-HY
Temperature	23.9°C	Humidity	63%
Test Engineer	Streak	Configurations	CRX 802.11n 2437 MHz (20MHz)

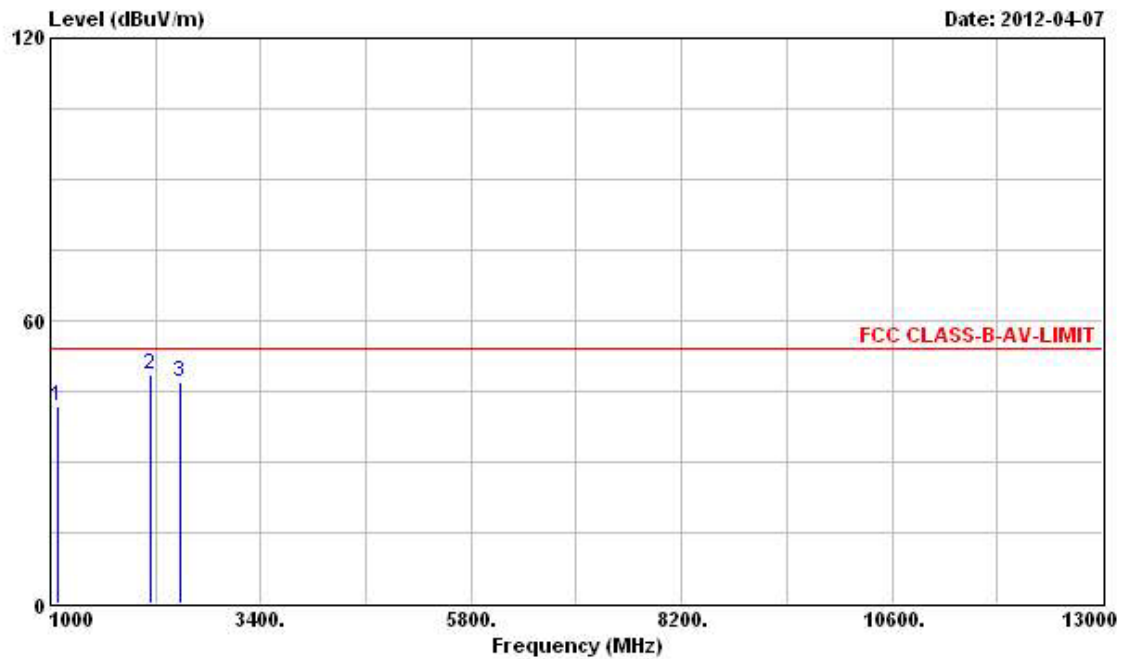
Horizontal



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	1325.000	40.81	-13.19	54.00	46.39	27.36	2.11	35.05	Peak	---	---
2	1655.000	48.63	-5.37	54.00	52.53	28.40	2.43	34.73	Peak	---	---
3	3315.000	49.52	-4.48	54.00	47.36	33.40	3.68	34.92	Peak	---	---



Vertical



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	1090.000	41.92	-12.08	54.00	48.32	27.12	1.88	35.40	Peak	---	---
2	2150.000	48.63	-5.37	54.00	49.34	31.16	2.81	34.68	Peak	---	---
3	2490.000	46.80	-7.20	54.00	46.13	32.40	3.08	34.81	Peak	---	---

Note:

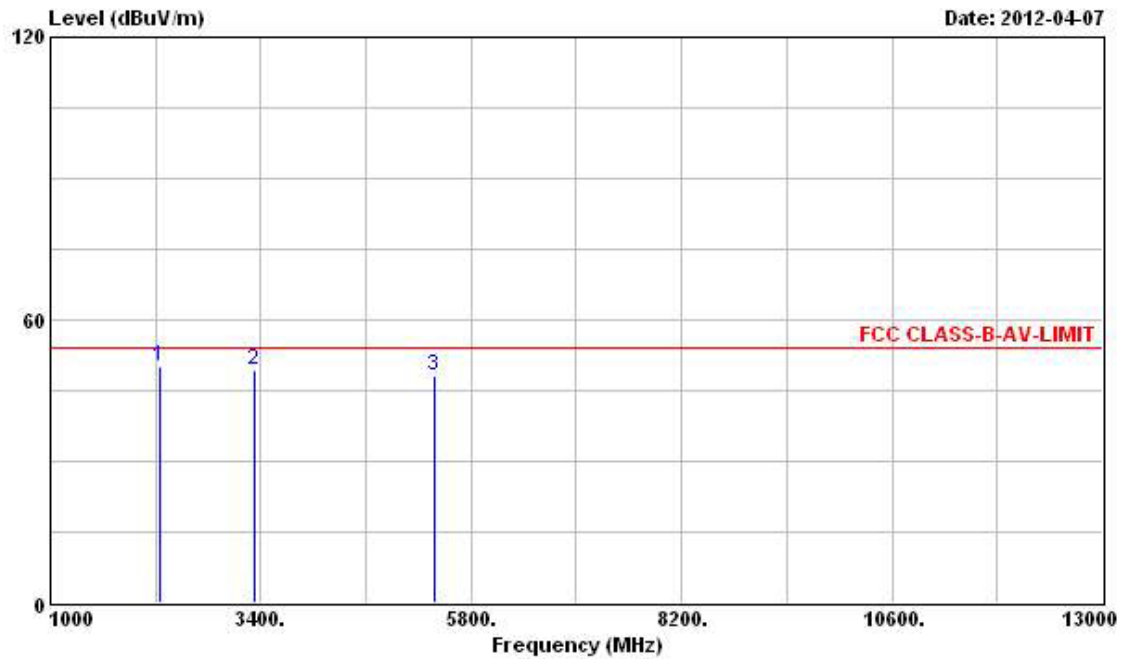
The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Final Test Date	Apr. 07, 2012	Test Site No.	03CH02-HY
Temperature	23.9°C	Humidity	63%
Test Engineer	Streak	Configurations	CRX 802.11n 2437 MHz (40MHz)

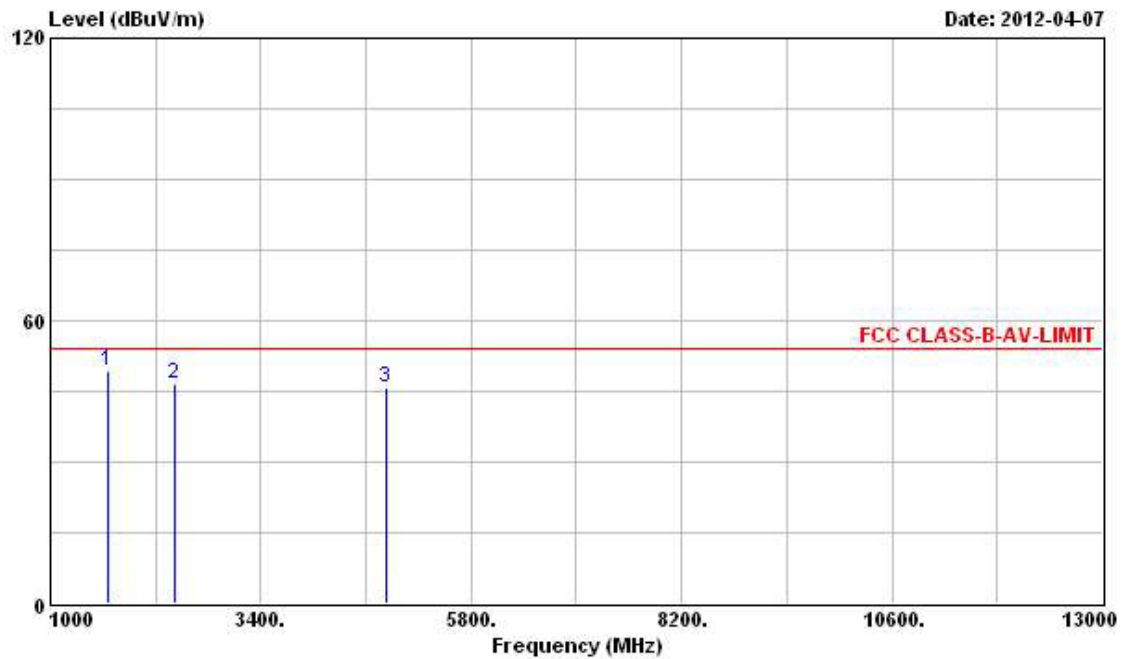
Horizontal



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	2250.000	50.01	-3.99	54.00	50.60	31.23	2.90	34.72	Peak	---	---
2	3330.000	49.42	-4.58	54.00	47.22	33.40	3.72	34.92	Peak	---	---
3	5375.000	48.06	-5.94	54.00	41.41	36.51	4.87	34.73	Peak	---	---



Vertical



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	1655.000	49.49	-4.51	54.00	52.79	29.00	2.43	34.73	Peak	---	---
2	2410.000	46.63	-7.37	54.00	46.30	32.09	3.02	34.78	Peak	---	---
3	4835.000	45.98	-8.02	54.00	41.06	35.14	4.58	34.80	Peak	---	---

Note:

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

4 LIST OF MEASURING EQUIPMENTS

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMC Receiver	R&S	ESCS 30	100132	9kHz ~ 2.75GHz	Feb. 08, 2012	Conduction (CO01-HY)
LISN	MessTec	NNB-2/16Z	2001/004	9kHz ~ 30MHz	Jan. 12, 2012	Conduction (CO01-HY)
LISN (Support Unit)	MessTec	NNB-2/16Z	2001/009	9kHz ~ 30MHz	Feb. 20, 2012	Conduction (CO01-HY)
EMI Filter	LINDGREN	LRE-2060	1004	< 450Hz	N/A	Conduction (CO01-HY)
EMI Filter	LINDGREN	N6006	201052	0 ~ 60Hz	N/A	Conduction (CO01-HY)
RF Cable-CON	HUBER+SUHNER	RG213/U	07611832010001	9kHz ~ 30MHz	Mar. 02, 2012	Conduction (CO01-HY)

Note: Calibration Interval of instruments listed above is one year.

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Spectrum Analyzer	R&S	FSP40	100593	9kHz ~ 40GHz	Aug. 08, 2011	Radiation (03CH02-HY)
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH02-HY	30MHz ~ 1GHz 3m	May 11, 2011	Radiation (03CH02-HY)
Amplifier	Agilent	8447D	2944A11146	100kHz ~ 1.3GHz	Jul. 25, 2011	Radiation (03CH02-HY)
Amplifier	Agilent	8449B	3008A02373	1 Hz ~ 26.5GHz	Jul. 25, 2011	Radiation (03CH02-HY)
Horn Antenna	ETS-LINDGREN	3117	00091920	1GHz ~ 18GHz	Nov. 15, 2011	Radiation (03CH02-HY)
RF Cable-R03m	Jye Bao	RG142	CB021	30MHz ~ 1GHz	Nov. 11, 2011	Radiation (03CH02-HY)
RF Cable-high	SUHNER	SUCOFLEX106	03CH02-HY	1GHz ~ 40GHz	Mar. 06, 2012	Radiation (03CH02-HY)
Bilog Antenna	SCHAFFNER	CBL61128	2723	30MHz ~ 2GHz	Oct. 22, 2011	Radiation (03CH02-HY)
Turn Table	HD	DS 420	420/649/00	0~ 360 degree	N/A	Radiation (03CH02-HY)
Antenna Mast	HD	MA 240	240/559/00	1 ~ 4 m	N/A	Radiation (03CH02-HY)

Note: Calibration Interval of instruments listed above is one year.

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Loop Antenna	R&S	HFH2-Z2	860004/001	9kHz ~ 30MHz	Jul. 29, 2010*	Radiation (03CH02-HY)

Note: Calibration Interval of instruments listed above is two year.

5 TEST LOCATION

SHIJR	ADD : 6Fl., No. 106, Sec. 1, Shintai 5th Rd., Shijr City, Taipei 221, Taiwan, R.O.C. TEL : 886-2-2696-2468 FAX : 886-2-2696-2255
HWA YA	ADD : No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL : 886-3-327-3456 FAX : 886-3-327-0973
LINKOU	ADD : No. 30-2, Dingfu Vil., Linkou Dist., New Taipei City 244, Taiwan, R.O.C. TEL : 886-2-2601-1640 FAX : 886-2-2601-1695
DUNGHU	ADD : No. 3, Lane 238, Kangle St., Neihu Chiu, Taipei 114, Taiwan, R.O.C. TEL : 886-2-2631-4739 FAX : 886-2-2631-9740
JUNGHE	ADD : 7Fl., No. 758, Jungjeng Rd., Junghe City, Taipei 235, Taiwan, R.O.C. TEL : 886-2-8227-2020 FAX : 886-2-8227-2626
NEIHU	ADD : 4Fl., No. 339, Hsin Hu 2 nd Rd., Taipei 114, Taiwan, R.O.C. TEL : 886-2-2794-8886 FAX : 886-2-2794-9777
JHUBEI	ADD : No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C. TEL : 886-3-656-9065 FAX : 886-3-656-9085

6 TAF CERTIFICATE OF ACCREDITATION



Certificate No. : L1190-111208

財團法人全國認證基金會
Taiwan Accreditation Foundation

Certificate of Accreditation

This is to certify that

Sporton International Inc.
EMC & Wireless Communications Laboratory
No.52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien,
Taiwan, R.O.C.

is accredited in respect of laboratory

Accreditation Criteria	: ISO/IEC 17025:2005
Accreditation Number	: 1190
Originally Accredited	: December 15, 2003
Effective Period	: January 10, 2010 to January 09, 2013
Accredited Scope	: Testing Field, see described in the Appendix
Specific Accreditation Program	: Accreditation Program for Designated Testing Laboratory for Commodities Inspection Accreditation Program for Telecommunication Equipment Testing Laboratory Accreditation Program for BSMI Mutual Recognition Arrangement with Foreign Authorities



Jay-San Chen
President, Taiwan Accreditation Foundation
Date : December 08, 2011

P1, total 24 pages

The Appendix forms an integral part of this Certificate, which shall be invalid when use without the Appendix

Appendix A. Test Photos

1 Photographs of Conducted Emissions Test Configuration

FRONT VIEW



REAR VIEW

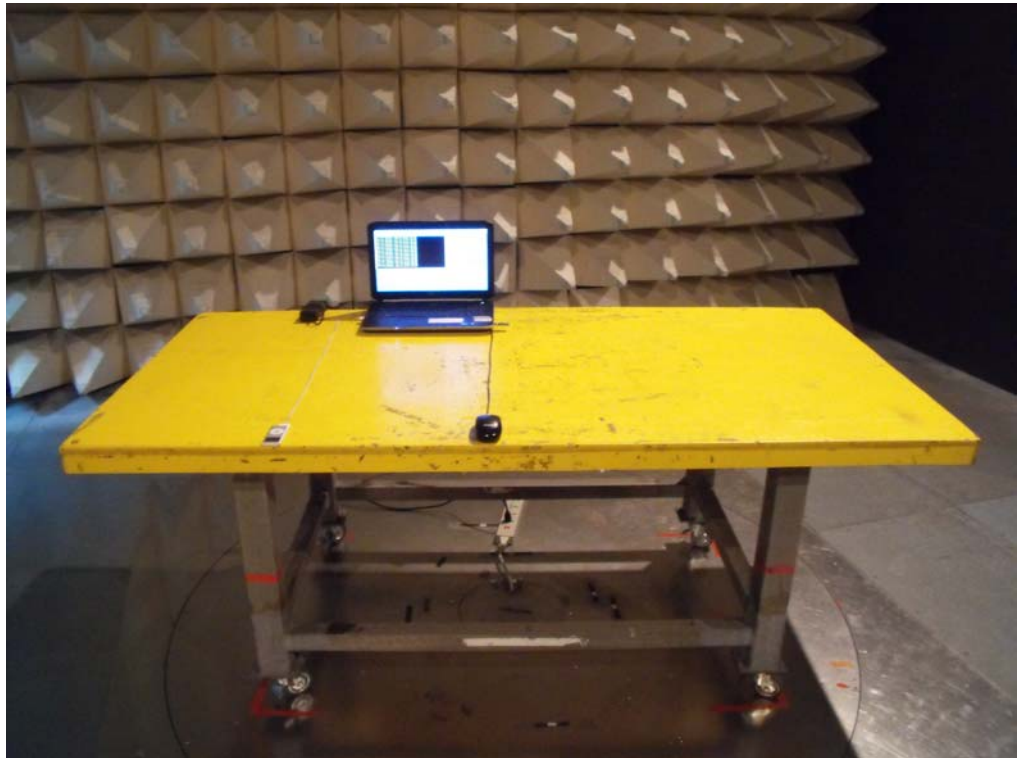


SIDE VIEW

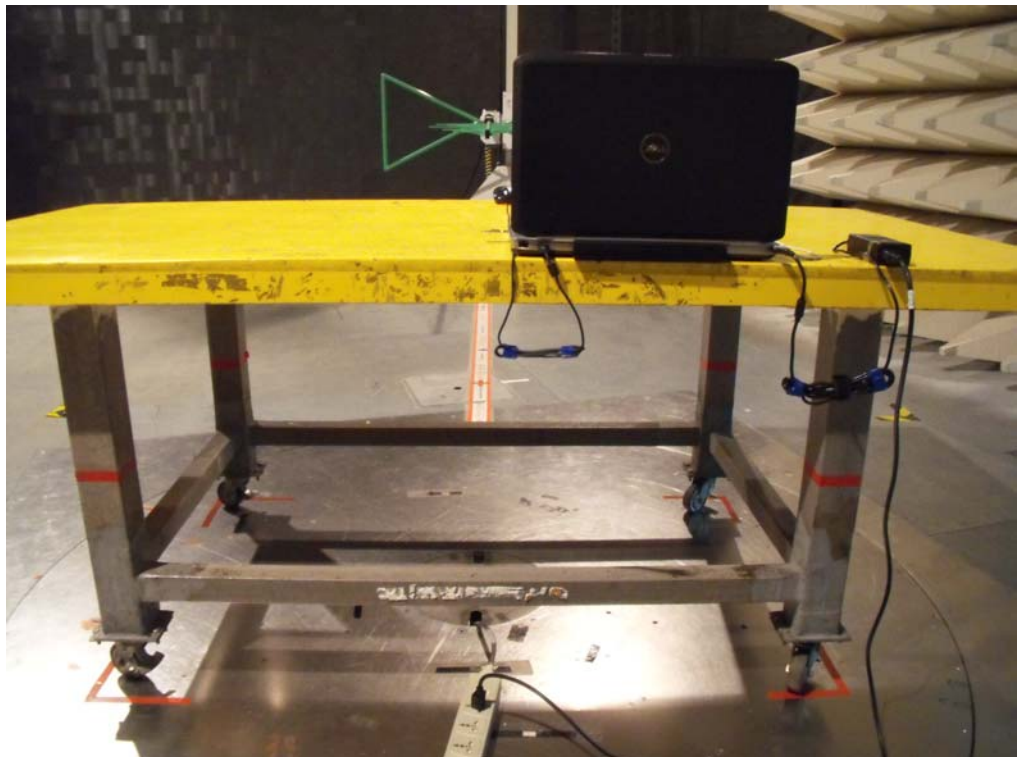


2 Photographs of Radiated Emissions Test Configuration

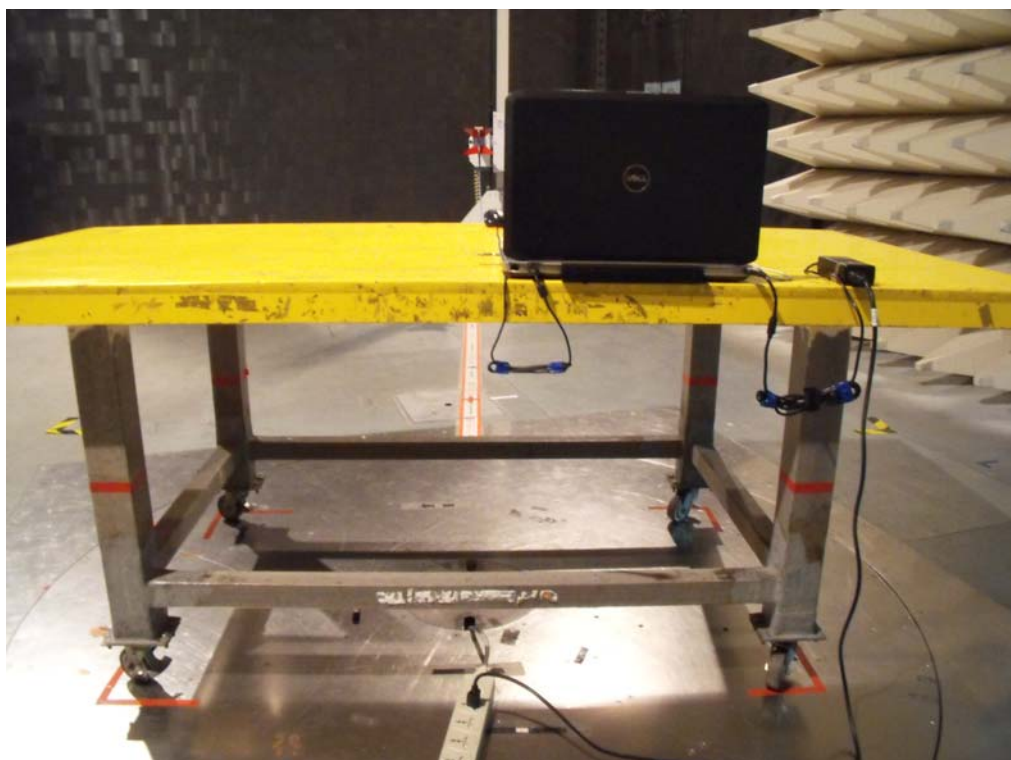
FRONT VIEW



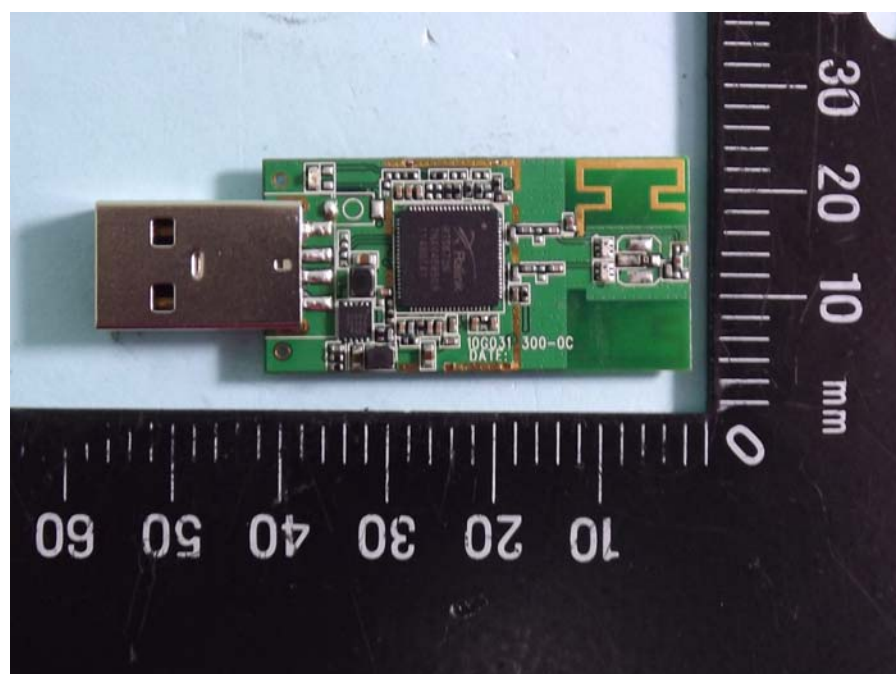
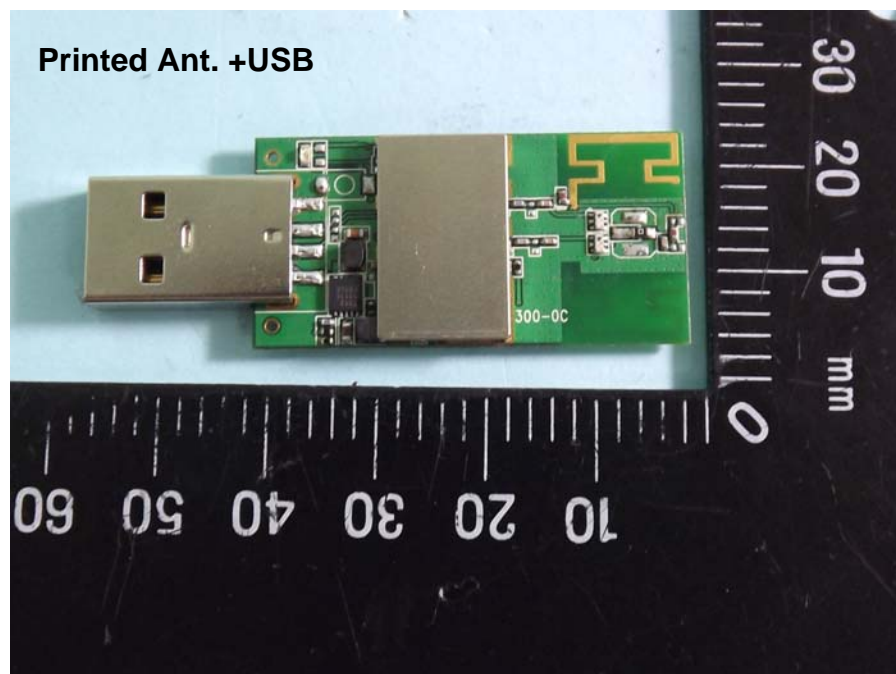
REAR VIEW

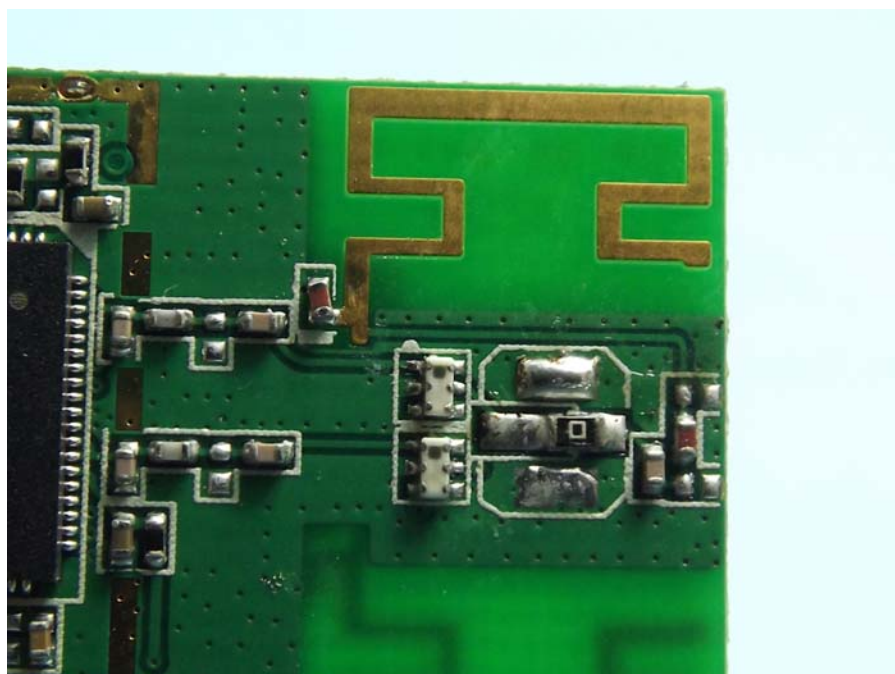


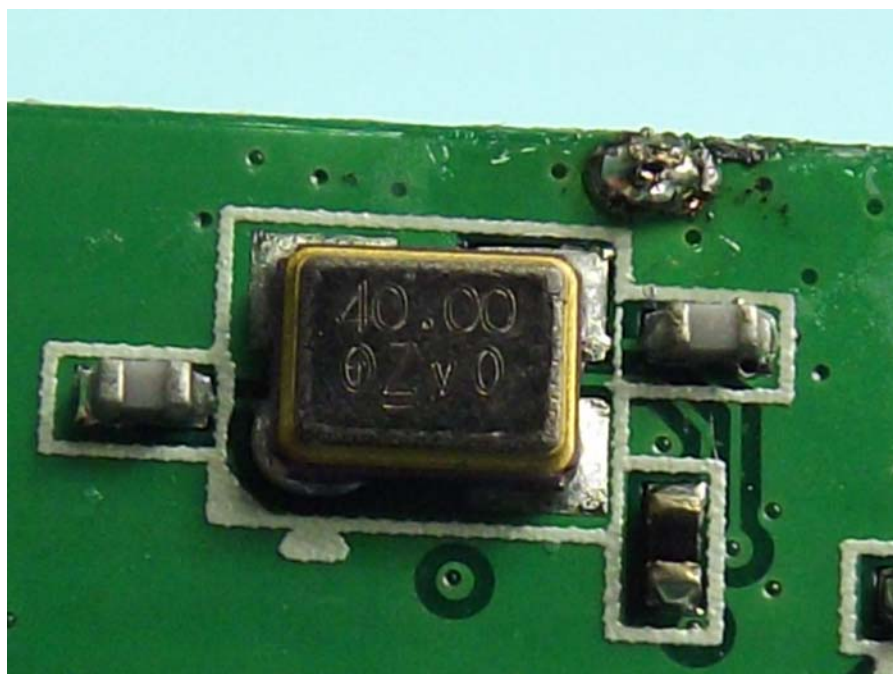
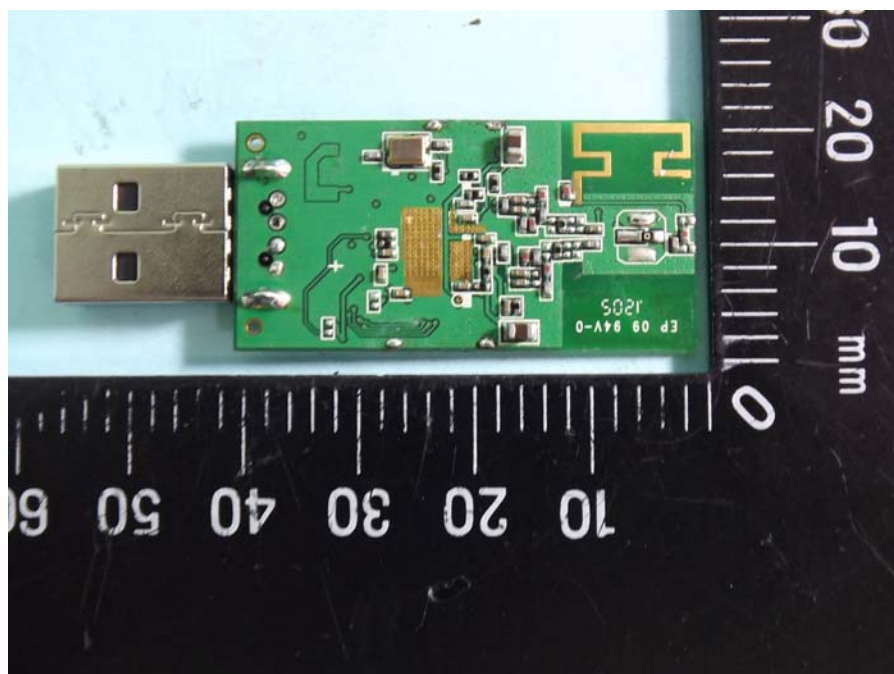
REAR VIEW

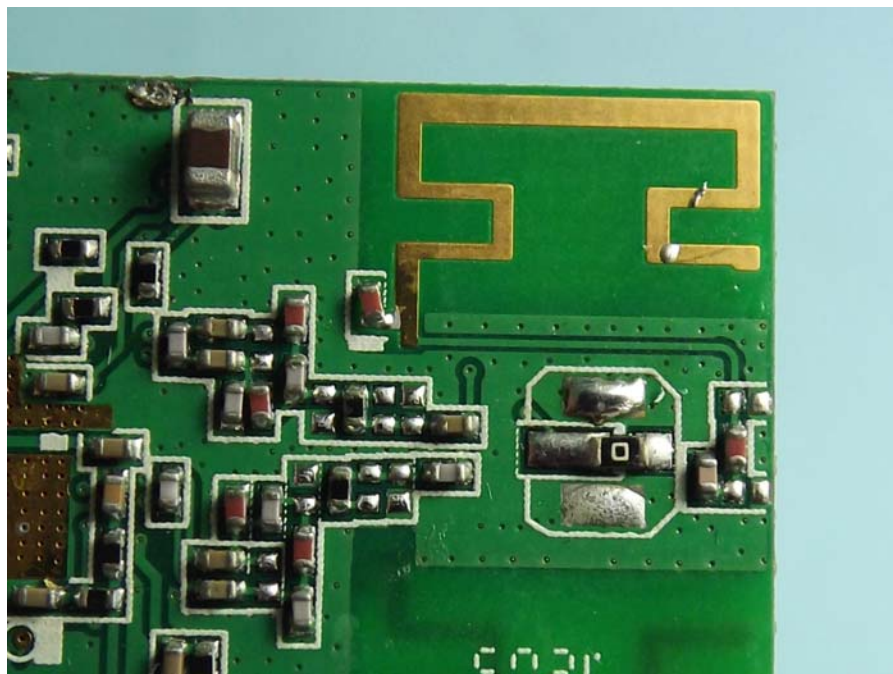


APPENDIX B. Photographs of EUT

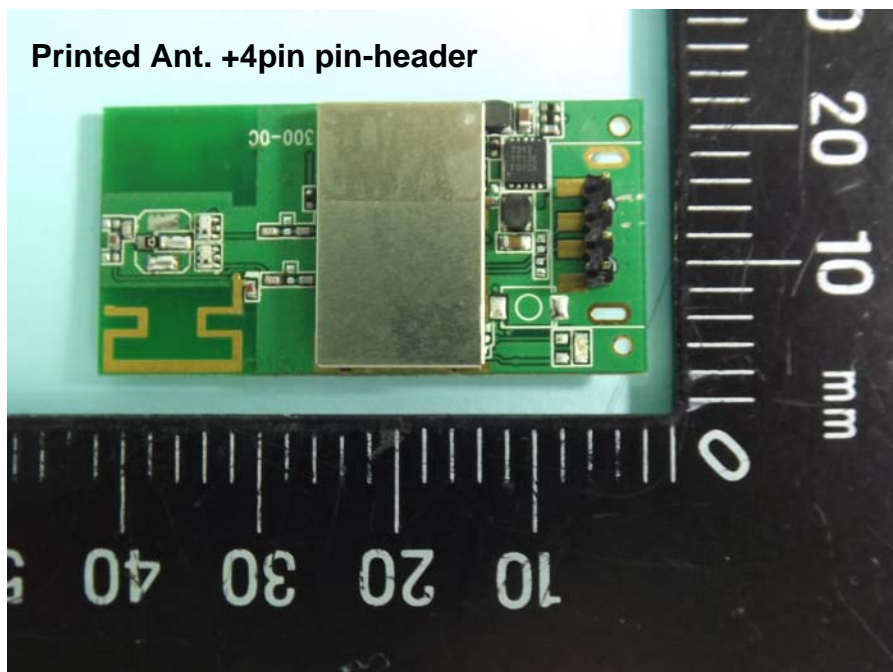


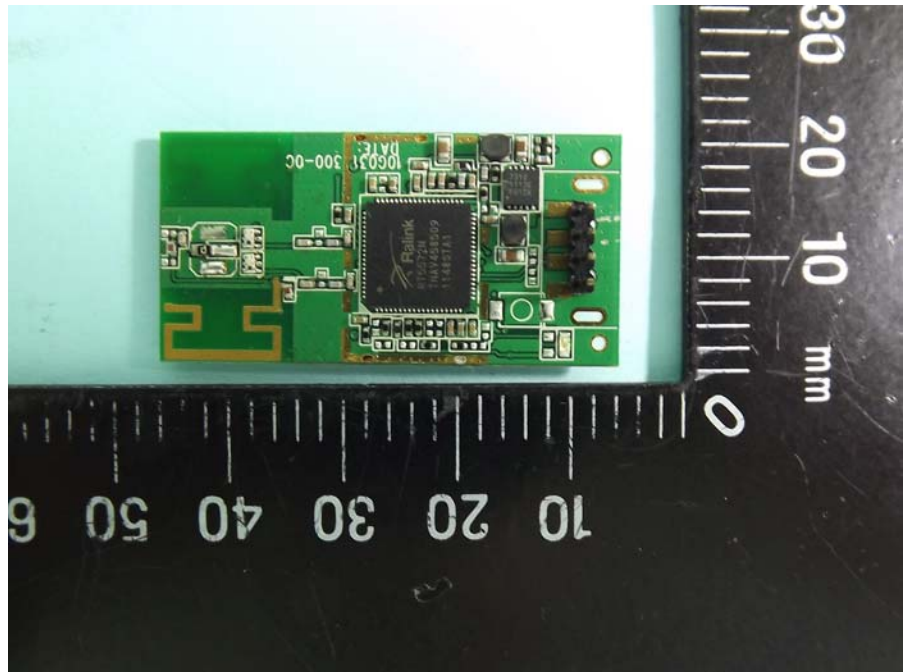


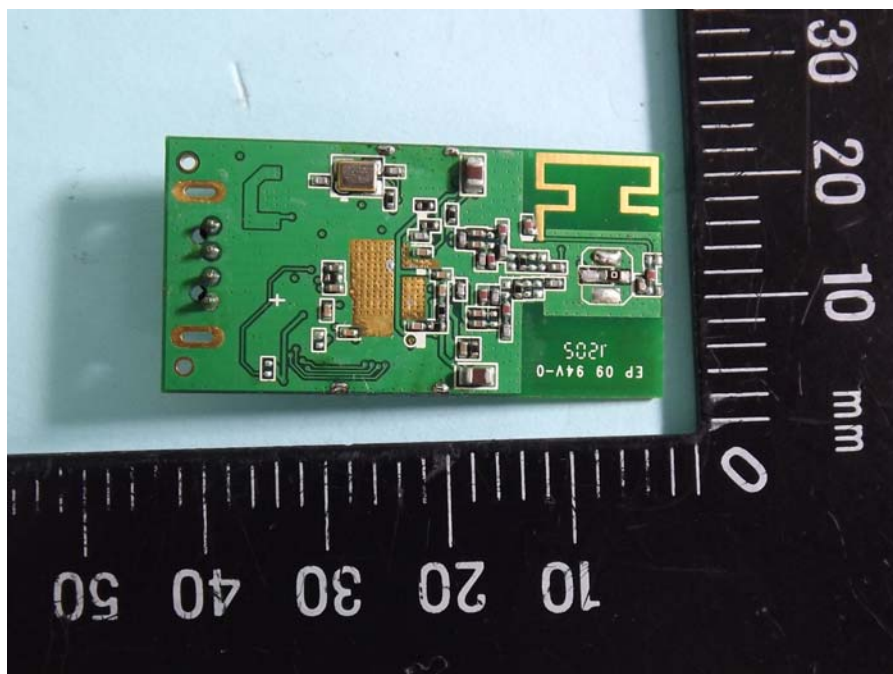
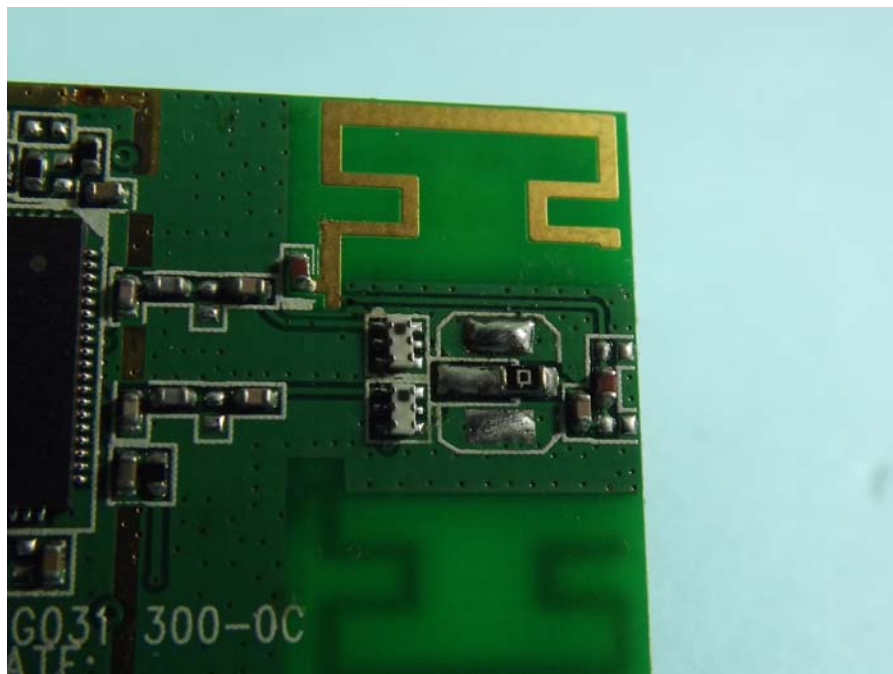


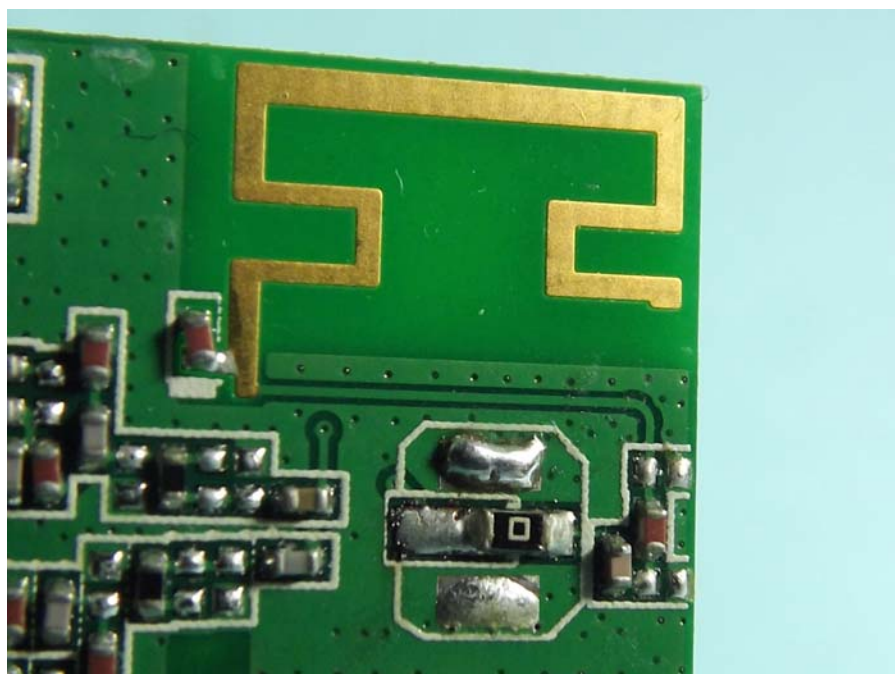
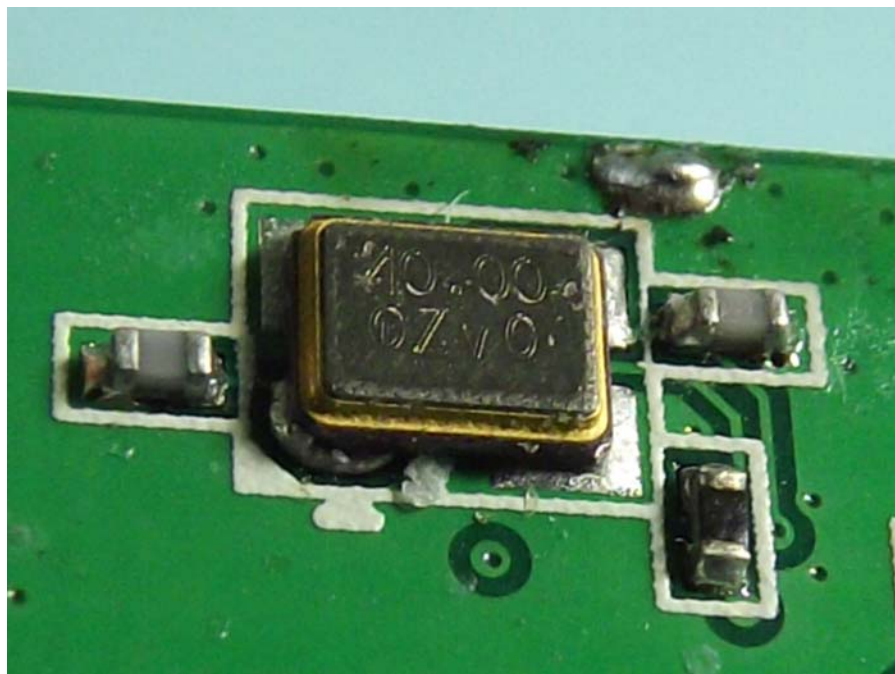


Printed Ant. +4pin pin-header









Printed Ant. +4pin wafer con

